Keltron LC Series
Compact Printer
User's Manual

KELTRON

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Version 3.1

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Manual Objective

This user's manual supplies the necessary information for installing and operating the Keltron LC series compact printers.

- Visual overview of the printer
- Power, data and panel mount installation procedures
- Initial power up and printer self-test
- Operation overview – graphics, built-in clock/calendar, line counter and interval timer outputs.
- Manual programming and programming via PC covered

Description

The Keltron LC series is a rugged printer packaged in a metal enclosure ready to panel mount or use on the desktop. This model features compact reliable, plain paper dot matrix impact printers capable of printing from 12 through 32 columns per line (Keltron LC24s) or 15 through 40 columns per line (Keltron LC40s).

The Keltron LC series printer supports the RS232C serial communication handshake. The Keltron LC series also features user selectable print features and a 2000 character print buffer to free the host computer during the printing process.

The basic Keltron LC series printer is comprised of a microcomputer-based printer controller card, a printer mechanism module, a power supply with an interface card and a metal enclosure. The printer controller and the printer mechanism are located behind the front panel. The rear panel holds the interface connectors and the power supply module.

The Keltron printer controller and interface cards manage all the features supported by the printer. The boards hold the printer drivers, communication interfaces, real time clock, line counter, interval timer output, 2K print buffer and the front panel switch inputs. These enhanced features ease the operation and integration of the printers with data acquisition applications.

Upon initial power-up, the printer controller goes through extensive self-test procedures. It verifies the amount of print buffer installed and restores the default printer settings.

In the idle mode, the printer continuously checks the front panel controls and the paper out detector. It also services the time clock, interval timer, print buffer, internal processor and the power supply watchdog monitor.

Unpacking the Keltron LC Series Compact Printer

Remove the Keltron LC series printer from the shipping container and make sure it is undamaged. The package also includes an AC/DC power adapter or a power input plug, a ribbon cartridge as well as a roll of paper. If any of the components are missing, contact Keltron for assistance.

Keep the packing material so you can repack the printer for storage or shipment. If there is any visible damage to the printer, record it on the freight bill, have the freight carrier acknowledge it and submit your claim to the carrier.

Caution: Do not install or operate damaged equipment as safety and performance may be affected.

Specifications

Power:

110VAC ±10%	(1.0A @ 9VDC)
220VAC ±10%	(1.0A @ 9VDC)
+5VDC ±3#	(1.0A)
+7.5 to 13.6VDC	(1.0A)
+9 to 35VDC	(6 Watts)

The AC models have a wall mount transformer with 5 ½ 'cord. The DC models come with a power harness 18" long, ready to wire to a power source (RED is +DC and BLACK is COMMON). With all DC models it is strongly recommended that 1.0A SLB fuses be installed externally.

Paper:

2.25" wide x 2.00" diameter, 15 pounds, plain paper roll
One roll supplied with printer
Reorder #10S216

Ribbon:

Purple ink, self-reversing, 250,000 character life
One cartridge supplied with printer
Reorder #10S221 (Black ink cartridge available reorder #10S223)

Print:

Dot matrix impact
24/32 column width (2.5 lines/second printing LC24s)
Or 40/30 column width (1.8 lines/second printing LC40s)
Full 256 ASCII character set
Print head life is 1,000,000 character lines (MTBF – Mean Time – Before – Failure)
Dots-per-line is 144

Operating Temperature & Relative Humidity (RH):

0 to 50°C (ambient)
RH 20% to 90% (non-condensing)

Weight:

2 lbs (0.907 kg) – boxed ready to ship
1.4 lbs (actual printer weight)

RS232C Serial Communications

Serial Protocol (see Table 1): In this mode, pins 4 (RTS) and 5 (CTS) are used to control data flow to and from the printer.

Pin 4 (RTS) is used to control the data flow to the printer, which raises RTS when it is ready to accept data and lowers RTS under any of the following conditions:

- Print buffer has less than 256 unused locations
- Printer is out of paper
- Printer is off-line (the select button <SLCT> on the front panel has been pressed)

Input to pin 5 (CTS) is monitored during data transmission from the printer. The unit transmits only if CTS is high under **Serial Busy Protocol.**

XON/XOFF Protocol: The unit transmits XON when it is ready to accept data and XOFF for conditions listed above in the Serial Busy Protocol section.

Under XON/XOFF protocol the data flow out from the printers serial port is halted on receipt of XOFF and resumed on receipt of XON.

RS232C Specifications (see Table 2):

Baud rate	DIP switch selectable for 150 through 9600 baud
Parity	DIP switch selectable for ODD/EVEN/NO parity
Word length	1 start, 7 or 8 data bits (DIP switch selectable) and 1 or 2 stop bits (DIP switch selectable)
Signal levels	Mark or Logical 1 = -3 to -14VDC Space or Logical 0 = +3 to +15VDC
Handshaking	RTS/CTS or XON/XOFF
Connection	DB25S receptacle type (see Table 1 for pinouts)

The printer communications protocol can be modified from the front panel or by DIP switches located inside the printer. When power is cycled to the printer the printer will always revert to the DIP switch settings. It is recommended that the printer communication protocol by set by the DIP switches.

Note: When DIP switch settings have been modified cycle power to the Keltron LC series printer to enable the new settings.

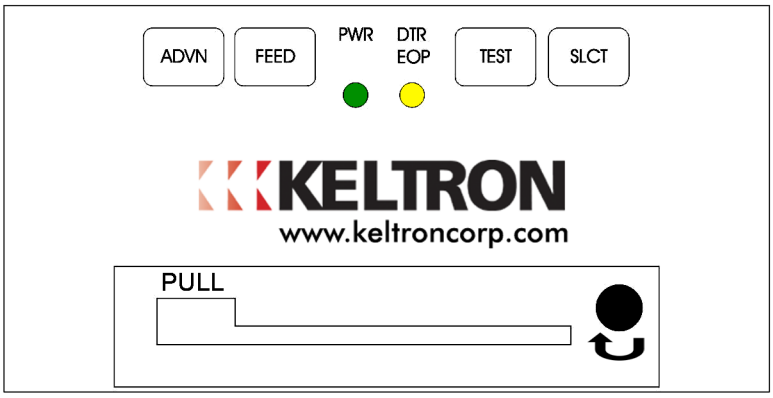
DB25S Connector Pin#	Description	Signal Name
1	Earth Ground	GND
2	RS232 output	TXD
3	RS232 input	RXD
4	Request to send – output	RTX
5	Clear to send – input	CTS
7	Logic common	COM

Table 1 Pinout for Keltron LC series rear panel connector

Switch#	150 Baud	300 Baud	600 Baud	1200 Baud	1800 Baud	2400 Baud	4800 Baud	9600 Baud
1	ON	OFF	ON	OFF	ON	OFF	ON	OFF
2	ON	ON	OFF	OFF	ON	ON	OFF	OFF
3	ON	ON	ON	ON	OFF	OFF	OFF	OFF
Switch#	**7 Data Bits**	**8 Data Bits**	**No parity**	**Parity enabled**	**Even parity**	**Odd parity**		
4	ON	OFF	-	-	-	-		
5	-	-	ON	OFF	OFF	OFF		
6	-	-	-	-	ON	OFF		

Table 2 DIP switch setting for the Keltron LC series printer
NOTE: All the switches are in the OFF position from the factory.

Front Panel Description



LEDS:

PWR (Green)	When lit when power is ON
DTR/EOP (Yellow)	When lit printer is ON-LINE
	When flashing printer is OUT OF PAPER

Function Keys:

ON-LINE:

<SLCT>	Press to change printer from ON-LINE to OFF-LINE mode.
	ON-LINE the DTR/EOP LED is ON
<ADVN>	Press when printer is ON-LINE to advance paper five lines.
<TEST>	Press to print program version, time, date and count value of printer.
<FEED>	Press to advance paper one line.

OFF-LINE:

<SLCT>	Press to change printer from ON-LINE to OFF-LINE mode.
	OFF-LINE the DTR/EOP LED is OFF
<ADVN>	Press when printer is OFF-LINE to enter printer set mode menus.
	See the *'Front Panel Programming'* section
<TEST>	Press to print program version, time, date and count value of printer.
<FEED>	Press to advance paper one line.

Installation

The Keltron LC series printer should be installed in a location that does not exceed the maximum operating temperature and provides good air circulation. Placing the printer near devices that generate excessive heat should be avoided.

When cleaning the front bezel use only a soft cloth and neutral soap products. DO NOT use solvents. Continuous exposure to direct sunlight may accelerate the aging process of the bezel. DO NOT use tools of any kind (screwdrivers, pens, pencils, etc…) to operate the push buttons on the unit.

Desk Top Mounting:

If mounting the Keltron LC series printer on a desk top it is suggested you install rubber feet (available with a peel off backing). This will prevent the unit from drifting on the surface during print mode.

Panel Mounting:

The following procedure assures proper installation:

1. Cut panel opening and drill mounting holes to specified dimensions (refer to Figure 1). Remove burrs and clean around panel opening.
2. Pull unit from case until stops reached.
3. Slide printer case into the panel.
4. Install 4 mounting screws through the brackets on the printer case all the way through the panel. Screws may be secured with lock washers.
5. Push the bezel of the printer toward the panel until it latches in the case.

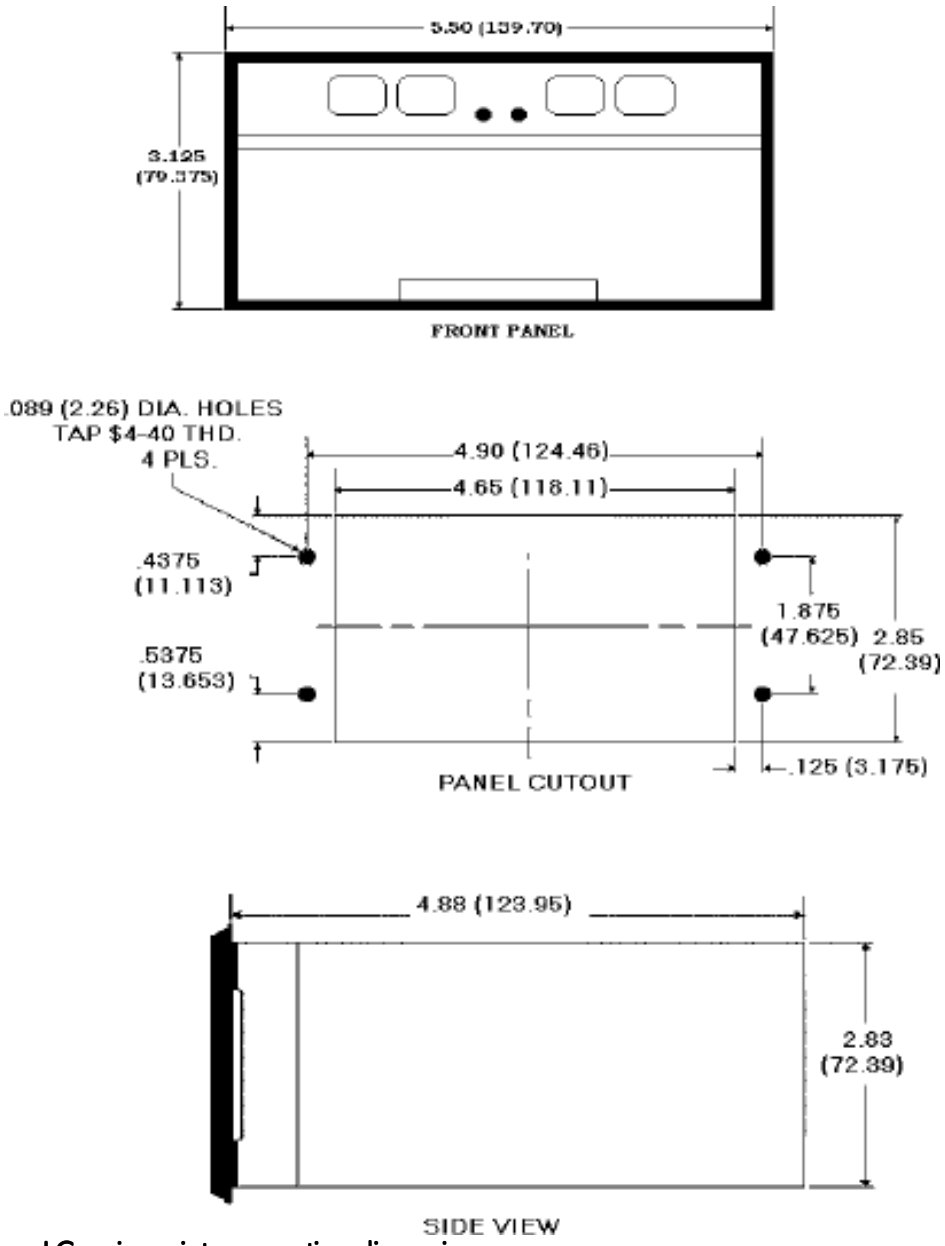


Figure 1 Keltron LC series printer mounting dimensions

Initial Power-Up and Self-Test

A self-test feature is built into the Keltron LC series printer. To start this press and hold the <TEST> switch and power up the printer. Continue holding the <TEST> switch until the printer has started printing.

The self-test program checks the integrity of the operating program installed, the 2048 character buffer, the processor watchdog and the power supervision circuits. If no problems are found, the following messages are printed:

Sample Test Print:	Description:
`BAUD 9600, DATA 8, PARITY NONE`	the current protocol settings (this line may overflow)
`INTERFACE: SERIAL`	type of interface being used
`BATT. CLOCK INSTALLED`	verifies the battery is installed (standard on all LCs)
`2K BUFFER INSTALLED`	indicates buffer size installed
`V2.8 - LC`	indicates version of firmware installed and series type

Interval Timer

Range: 5 seconds to 24 hours (can be selected manually or programmed by sending as ASCII data string.

Action: Once an interval is selected, the Keltron LC series printer will execute the following actions on time-out:

1. Transmits control character ENQ (^E, 05H, 5)
2. Restarts timer

Keltron LC Series ASCII Character Set

The ASCII character set includes 255 characters. The first 32 characters (decimal 0 through 31) are reserved control characters. The remaining 224 characters (decimal 32 through 255) are printable characters.

Figure 2 lists the printable character set. The first 96 entries in this table are the 96 ASCII upper and lower case characters (like what can be found on a standard QWERTY keyboard). The remaining 128 characters are international, scientific and IBM PC extended characters.

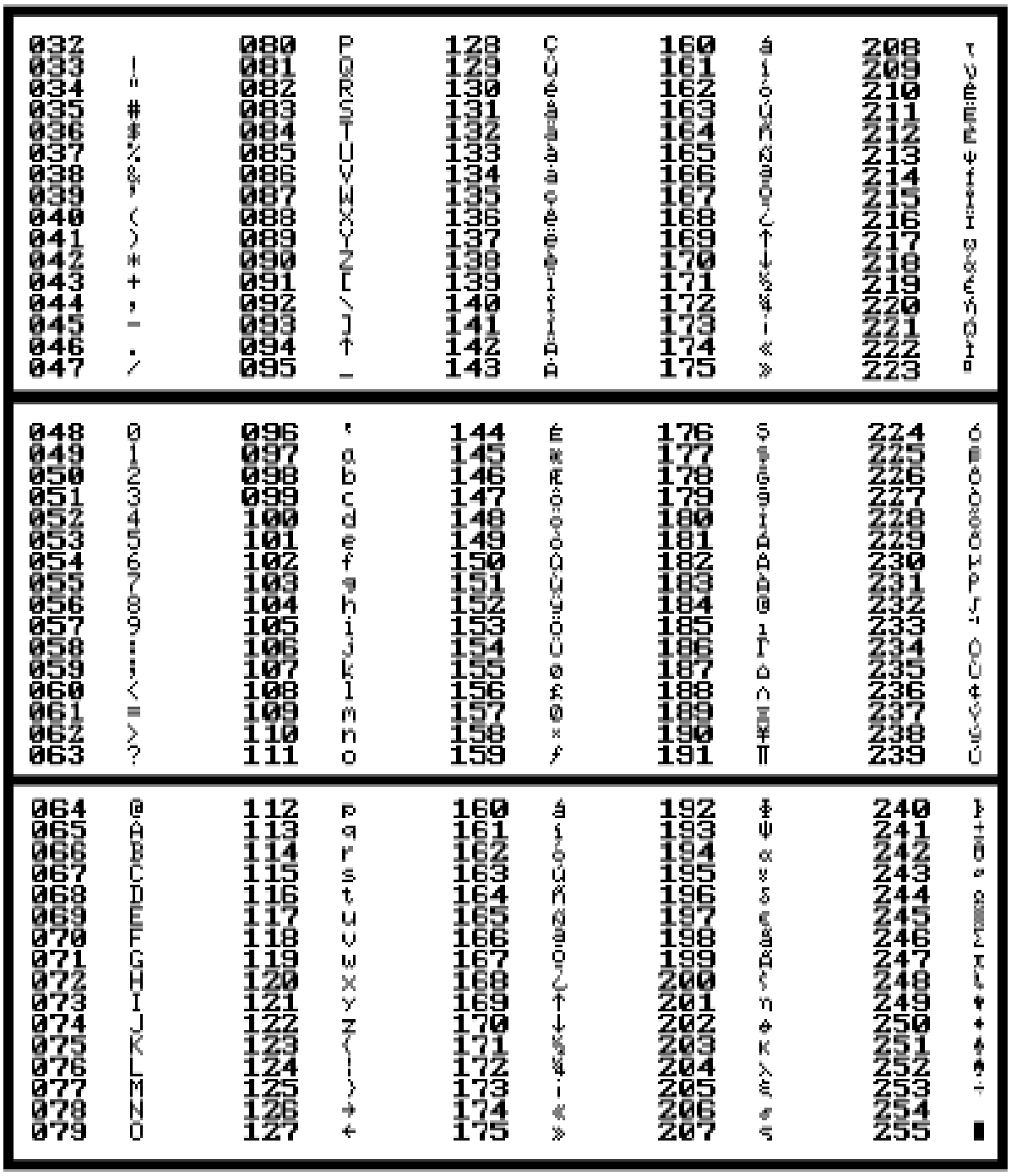


Figure 2 ASCII Character Set

Front Panel Programming

Main Set Menu:

With DTR/EOP LED ON, press **<SLCT>** then **<ADVN>** to access the menu below:

<SLCT>	**EXIT SET MODE**	Exits the Set Mode and places the printer ON-LINE
<ADVN>	**BAUD RATE AND PARITY**	See *Baud Rate & Parity* Section
<TEST>	**CLOCK/CALENDAR/INTERVAL**	See *Clock/Calendar/Counter/Interval timer* Section
<FEED>	**PRINT FEATURES**	See *Print & Character Features* Section

Baud Rate and Parity:

From the Main Set Menu press **<ADVN>** to access the menu below:

<SLCT>	**EXIT SET MODE**	Exits the Set Mode and places the printer ON-LINE
<ADVN>	**BACKUP TO PREVIOUS MENU**	Exits to Main Set Menu
<TEST>	**ADVANCE FIELD SELECTED**	Advances selections in the field marked with ➞
<FEED>	**GO TO NEXT FIELD**	Moves ➞ to the next field

Example:

➞	BAUD 2400	DATA7	PARITY NONE
Field	A	B	C

Field	Selections for Baud Rate and Parity Fields
A	150, 300, 600, 1200, 2400, 4800, 9600: Baud Rate
B	7, 8: Data
C	Even, Odd, None: Parity

Note: See DIP switches for default settings, the Keltron LC Series printer will revert to the DIP switch settings should the printer lose power.

Clock/Calendar/Interval Timer:

From the Main Set Menu press **<TEST>** to access the menu below:

Printer Clock/Calendar/Interval Timer **Selection Mode Menu:**

<SLCT>	**EXIT SET MODE**	Exits the Set Mode and places the printer ON-LINE
<ADVN>	**BACKUP TO PREVIOUS MENU**	Exits to Main Set Menu
<TEST>	**CLOCK/CALENDAR FORMAT**	Formats printout of clock/calendar/counter/interval timer
<FEED>	**CLOCK/CALENDAR SET**	Sets clock/calendar/counter/interval timer

Fields for Clock/Calendar/Line Counter Format:

From the Selection Model Menu, press **<TEST>** to access the menu below:

<SLCT>	**EXIT SET MODE**	Exits the Set Mode and places the printer ON-LINE
<ADVN>	**BACKUP TO PREVIOUS MENU**	Exits to Main Set Menu
<TEST>	**ADVANCE FIELD SELECTED**	Advances selections in the field marked with ➞
<FEED>	**GO TO NEXT FIELD**	Moves ➞ to the next field

Example:

➞	ON	HH:MM	:SS	MM/DD	/YY	COUNT ON
Field	A	B	C	D	E	F

Field	Selections for Clock/Calendar/Counter/Interval Timer Formats		
	Enabled	**Disabled**	
A	On	OFF	Clock Printout
B	HH:MM	:	Hours & Minutes Printout
C	:SS	:	Seconds Printout
D	MM/DD	/	Month & Date Printout
E	/YY	/	Year Printout
F	COUNT ON	COUNT OFF	Line Counter Printout

Note: The Keltron LC series printer has battery backup capability to maintain these settings on power down.

Note: The time date stamp will not occur until one second after the final carriage return of a transmission. The line counter will continue to count carriage returns even if the line counter printout is off.

Fields for Clock/Calendar/Conter/Interval Timer Set:

From the Selection Model Menu, press **<FEED>** to access the menu below:

<SLCT>	**EXIT SET MODE**	Exits the Set Mode and places the printer ON-LINE
<ADVN>	**BACKUP TO PREVIOUS MENU**	Exits to Main Set Menu
<TEST>	**ADVANCE FIELD SELECTED**	Advances selections in the field marked with ➞
<FEED>	**GO TO NEXT FIELD**	Shows the value entered and moves ➞ to the next field Pressing the <FEED> from field G loops back to field A.

Example:

➞	21	:30	04	/24	/10	0000	OFF
Field	A	B	C	D	E	F	G

Field	Selections for Clock/Calendar/Counter/Interval Timer Set Fields
A	00-24: Set hours in 24 hour format. Press <TEST> once for each hour advanced*
B	00-59: Set minutes. Press <TEST> once for each minute advanced*
C	00-12: Set month. Press <TEST> once for each month advanced*
D	00-31: Set date. Press <TEST> once for each date advanced*
E	00-30, 96-00: Set year. Press <TEST> once for each year advanced*
F	0000-9999: Reset line counter (counts number of carriage returns). Press <TEST> to reset to 0000
G	0FF 05S 15S 30S 01M 02M 05M 15M 30M 01H 02H 04H 06H 08H 12H 24H Sets the interval time. Press <TEST> for each timer period advanced and displayed.

Note: Value will advance without display indication. Press <FEED> to review settings.

Print and Character Features:

From the Main Set Menu press **<FEED>** to access the menu below:

<SLCT>	**EXIT SET MODE**	Exits the Set Mode and places the printer ON-LINE
<ADVN>	**BACKUP TO PREVIOUS MENU**	Exits to Main Set Menu
<TEST>	**ADVANCE FIELD SELECTED**	Advances selections in the field marked with ➞
<FEED>	**GO TO NEXT FIELD**	Moves ➞ to the next field

Example:

➞	LINE	NORMAL*	H07	W05*	CRLF	F40
Field	A	B*	C	D*	E	F

Field	Selections for Print and Character Features Fields
A	LINE: Prints as soon as a complete line of characters is stored or when a carriage return, form feed, vertical tab or line feed is received (default)
	BUFFER: Only prints when 2K buffer is full or with CTRL D
B	NORMAL: The bottom of the characters come out of the printer first (default)*
	INVERTED: The top of the characters come out of the printer first. First line transmitted is printed last.*
C	H07: Character normal height 7 dots (default)
	H14: Character expanded height 14 dots
D	W05: Character width 5 dots (default)*
	W10: Character width 50 dots*
E	CRLF: If carriage return and line feed is received it is converted to line feed or after a full line both carriage return and line feed is ignored (default)
	ALL: All carriage returns and line feeds are processed
F	F24: 24 characters per line (default) LC24X/X F32: 32 characters per line
	F30: 30 characters per line F40: 40 characters per line (default) LC40X/X

Note: The Keltron LC Series printer cannot function with expanded width and inverted text enabled at the same time and can result in loss of printing functions. To correct send a CTRL X command or press <SLCT><ADVN><FEED><FEED><FEED><FEED><TEST>.

Printer returns to default settings with a serial CTRL X command. The Clock/Calendar/Counter stamp and program menus will always print in normal height and width. Also the Print and Character Features settings will be maintained on power down.

Using a Terminal Emulator Program to Program the LC Series Printer

The following ASCII commands and ESCAPE functions can be used on a PC using a terminal emulator program (such as PROCOMM or TELIX).

ASCII Printer Commands:

Character	CTRL Keys (use all CAPS)	Hexidecimal/ Decimal	Control Action
FNT-24 or FNT-30	^B	02/02	Select 24 characters per line font (LC24's) or 30 characters per line font (LC40's)
FNT-32 or FNT-40	^C	03/03	Select 32 characters per line font (LC24's) or 40 characters per line font (LC40's)
EOT	^D	04/04	End of Text or Print Buffer
BS	^H	08/08	Back Space: remove previous character
HT	^I	09/09	Horizontal Tab: advances four spaces from current position on line
LF	^J	0A/10	Line Feed: advance to beginning of next line
VT	^K	0B/11	Vertical Tab: advance 5 lines
FF	^L	0C/12	Form Feed: advance 10 lines
CR	^M	0D/13	Carriage Return: advance to beginning of next line
SO	^N	0E/14	All characters extended height (14 dots)
SI	^O	0F/15	All characters normal height (7 dots)
XON	^Q	11/17	Transmitted if printer is ON-LINE to receive date. If received, the host is ready to accept data.
AUX ON	^R	12/18	Print head on: Transmitted after loading paper in the printer.
XOFF	^S	13/19	Transmitted if printer is taken OFF-LINE (via <SLCT>), if print buffer is full or printer out of paper. If received, host's transmitter is off
AUX OFF	^T	14/20	Print head off: transmitted if out of paper
CANCEL	^X	18/24	Resets printer to defaults
ESC	^[	1B/27	Escape: Precedes various functions
EXPANDED*	^\	1C/28	All characters expanded width* (10 dots)
EXPANDED OFF	^]	1D/29	Normal width (5 dots)

Note: The Keltron LC Series printer cannot function with expanded width and inverted text enabled at the same time and can result in loss of printing functions. To correct send a CTRL X command or press <SLCT><ADVN><FEED><FEED><FEED><FEED><TEST>.

Printer returns to default settings with a serial CTRL X command. The Clock/Calendar/Counter stamp and program menus will always print in normal height and width. Also the Print and Character Features settings will be maintained on power down.

Excape Key [ESC] Printer Functions:

Command (CAPS)	Function
[ESC]E	Auto print clock/calendar/counter. Enter once to Auto print after each carriage return per [ESC]F format.
[ESC]F{Format Character*}	Format print clock/calendar/line counter for Auto print [ESC]E
[ESC]D	Disable print clock/calendar/line counter. Enter once to stop Auto print [ESC]E
[ESC]T{Format Character*}	Single serial transmit clock/calendar/line counter per this format.
[ESC]P{Format Character*}[CTRL M]	Single print clock/calendar/line counter per this format.
[ESC]S{time date}[CTRL M] Note: Can only be performed in normal width mode.	Set {time and date} 24 hour format: HH:MM:SS MM/DD/YR
[ESC]C	Reset the line counter to 0000
[ESC]I@	Disable interval timer
[ESC]I?	Prints current interval timer setting
[ESC]I{Interval Character}	Set interval timer {see Interval Timer Chart for Interval Character}
[ESC]MN	Normal mode: Bottom of the character prints first (default)
[ESC]MI	Inverted mode: top of the character prints first, first line transmitted is the last line printed**
[ESC]ML{CTRL D}	Line mode: Prints as soon as a complete line of characters is stored or when carriage return, form feed, vertical tab or line feed is received (default)
[ESC]MB	Buffer mode: only prints when 2K buffer is full or with CTRL D print buffer command
[ESC]MC	CR-LF mode: If carriage return and line fee is received it is converted to LF or after a full line both carriage return and line feed is ignored (default)
[ESC]MA	Print All mode: all carriage returns and line feed are processed

**See the Clock/Calendar/Line Counter Format Chart for format character*

*****Note: The Keltron LC Series printer cannot function with expanded width and inverted text enabled at the same time and can result in loss of printing functions. To correct send a CTRL X command or press <SLCT><ADVN><FEED><FEED><FEED><FEED><TEST>.***

Printer returns to default settings with a serial CTRL X command. The Clock/Calendar/Counter stamp and program menus will always print in normal height and width. Also the Print and Character Features settings will be maintained on power down.

Clock/Calendar/Line Counter Format Chart: This chart is only used for escape functions F, T and P.

Format character	Hours/Minutes	Seconds	Month/Day	Years	Line
@ (40 HEX)	=	=	=	=	=
A (41 HEX) or I (49 HEX)			=	=	=
B (42 HEX) or R (52 HEX)	=	=			=
C (43 HEX) or K (4B HEX)					=
D (44 HEX)	=	=	=	=	
E (45 HEX) or M (4D HEX)			=	=	
F (46 HEX) or V (56 HEX)	=	=			
G (47 HEX) or O (4F HEX)					
H (48 HEX)	=		=	=	=
J (4A HEX) or Z (5A HEX)	=				=
L (4C HEX)	=		=	=	
N (4E HEX) or ^ (5E HEX)	=				
P (50 HEX)	=	=	=		=
Q (51 HEX) or Y (59 HEX)			=		=
T (54 HEX)	=	=	=		
U (55 HEX)			=		
X (58 HEX)	=		=		=
\ (5C HEX)	=		=		
] (5D HEX)		=			

Interval Timer Chart: This chart is only used for escape function I.

ASCII character	(HEX Value)	Interval selected
?	(3F)	Prints current setting
@	(40)	OFF
A	(41)	5 seconds
B	(42)	15 seconds
C	(43)	30 seconds
D	(44)	1 minute
E	(45)	2 minutes
F	(46)	5 minutes
G	(47)	15 minutes
H	(48)	30 minutes
I	(49)	1 hour
J	(4A)	2 hours
K	(4B)	4 hours
L	(4C)	6 hours
M	(4D)	8 hours
N	(4E)	12 hours
O	(4F)	24 hours

For additional explanations on these settings see Interval Timer Section.

Installing Paper and Ribbon in the Keltron LC Series Printer

Installing the Paper

Note: the printer power must be ON to install paper. When the printer is out of paper, the yellow DTR/EOP" LED will blink. Please see figures 3, 4 and 5 for the next steps:

1. If there is paper in the printer, pull the remaining paper through the printe r mechanism in the forward direction.
2. Remove the empty roll and remove the plastic supply spindle and place it nearby for re-use.
3. Insert the plastic supply spindle into a new roll of paper, and orient it so that the paper comes off the roll over the top and towards you. Put the supply roll back in the supply roll bracket, again ensuring proper orientation.
4. Ensure that the paper path is free and clear and that the paper roll moves freely.
5. Pull the paper down and loop it back up into the printer mechanism opening.
6. Press and hold the <FEED> switch until paper comes through the front of the mechanism.
7. Remove any slack in the paper roll so that the paper will continue to flow smoothly when the printer is closed. Return the printer to service.
8. When the Keltron printer is out of paper it will automatically be placed offline. When you properly install a new roll of paper, press the <SLCT> button and the printer will resume printing.

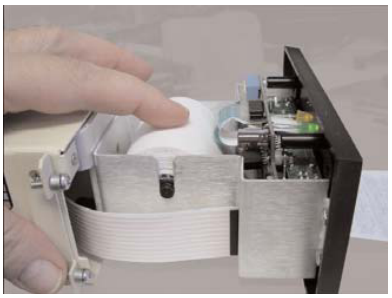


Figure 3

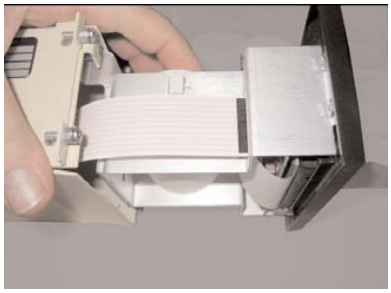


Figure 4

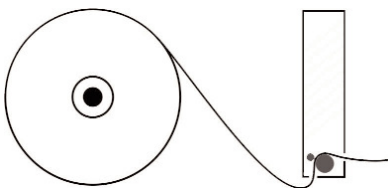


Figure 5

Installing the Ribbon

1) To replace the printer ribbon, pull the existing ribbon cartridge forward to remove it; see figure 6.
2) Insert the new cartridge with the paper under the ribbon. Turn the knob toward the arrow to tighten the ribbon.
3) Change the ribbon before it becomes worn out. Do not attempt to re-ink a spent ribbon cartridge.

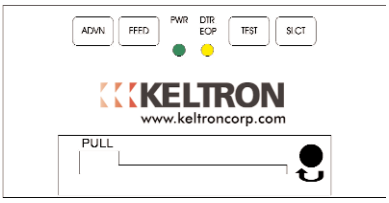


Figure 6

Caution

Do not use the printer if the ribbon and paper are not properly installed as this can cause damage to the print head mechanism.

Always make sure to install the paper roll so that the paper comes from front top of roll. If the paper roll is installed backwards the paper can bind on the printed circuit board causing a paper jam.

If for any reason the paper becomes jammed, immediately take the printer off line by pressing the <SLCT> button once and slowly pulling out the paper. Paper jams can damage the print mechanism requiring replacement.

Warranty

The Keltron Corporation warrants all products against defects in workmanship, materials, and construction under normal use and service for a period of ONE YEAR, except radio transceivers which carry a 36-month warranty, from the date of shipment. Keltron Corporation's responsibility under this warranty is limited to the repair or replacement of defective parts that are returned to the factory, freight prepaid. Repaired parts are returned to the customer from the factory, freight prepaid.

This warranty does not extend to any of our products that in our opinion have been subjected to misuse, neglect, accident, improper installation, or misapplication. The warranty does not extend to products that have been repaired or altered outside our factory without our written approval.

Except as provided above, Keltron Corporation makes no warranty of any kind, express or implied, except that the goods sold under this agreement shall be of the standard quality of Keltron Corporation, and the buyer assumes all risk and liability resulting from the use of the goods. Keltron Corporation neither assumes nor authorizes any person to assume for Keltron Corporation any other liability in connection with the sale or use of the goods sold, and there are no oral or written agreements or warranties collateral to or affecting this agreement. Further, Keltron Corporation shall not be liable for consequential damages resulting from any breach of warranty.